

Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) EP 1 029 483 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
23.08.2000 Bulletin 2000/34

(51) Int Cl.7: A47J 27/08

(21) Application number: 99830082.6

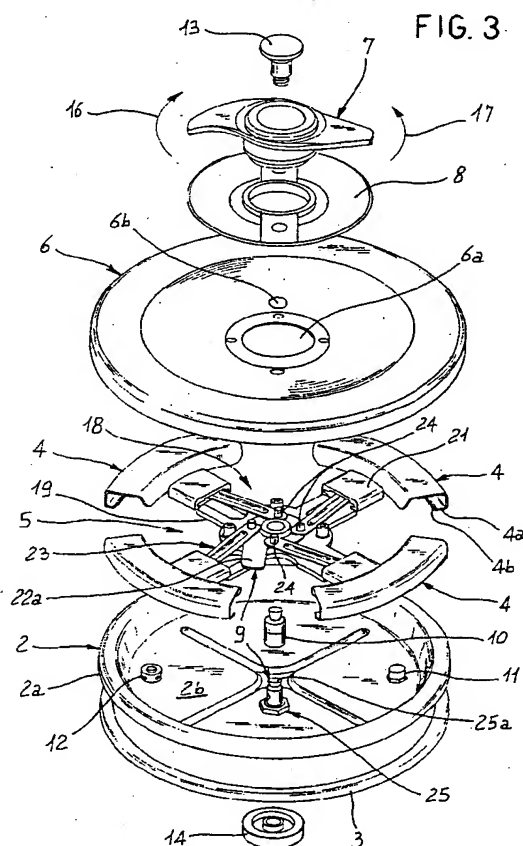
(22) Date of filing: 18.02.1999

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI
(71) Applicant: Tutto S.p.A.
20094 Corsico (Milano) (IT)

(72) Inventor: Morando, Mauro
20090 Cusago (Milano) (IT)
(74) Representative: Tansini, Elio Fabrizio
C/O Bugnion S.p.A.
Viale Lancetti 19
20158 Milano (IT)

(54) Cover for pressure pots

(57) A cover for pressure pots is provided comprising a box body (2), an element (6) for covering the box body, at least two movable jaws (4), a mechanism (5) for controlling the movable jaws housed internally to the box body (2) and able to impose to the jaws themselves sliding motions in radial direction with respect to the box body (2) to determine their shift from a disengaged position to an engaged position with respect to the upper edge of the pot, and an element for manoeuvring the control mechanism.



BEST AVAILABLE COPY

Description

[0001] The present invention relates to a cover for pressure parts comprising a box body defining the base of the cover and provided with a sealing gasket, an element for covering at least the box body, at least two movable jaws presenting grip portions able to engage an upper edge of a pot provided for coupling to the cover, a mechanism for controlling the movable jaws housed internally to the box body, an element for manoeuvring the control mechanism emerging from the cover element.

[0002] As is well known, the covers provided for the operation under pressure of pots or containers for culinary use are generally fitted with appropriate movable jaws presenting grip portions able to engage the lower bands of the upper edges of the pots where to they are coupled in such a way as to hold the covers themselves against such edges even when the pressure of the steam inside the pressures climbs considerably.

[0003] In some known types of covers for pressure pots, for instance, two opposed jaws are provided, supported by a yoke-shaped bar which is raised or lowered by the rotation of a manoeuvring knob provided with a threaded stem inserted in the cover itself.

[0004] The covers summarily described above, in addition to being impractical due to their bulk, also have a reduced aesthetic value since the mechanism for controlling the jaws and the jaws themselves are fully in view above the covers.

[0005] To overcome such limitations, other types of covers are also known, comprising each a box body able to house the mechanism for controlling the jaws and defining the base of the cover itself which is fitted with a sealing gasket provided to be set against the upper edge of a suitably sized pot.

[0006] The box body is delimited by a cover element which hides from view both the jaws and the control mechanism. From the cover element emerges a manoeuvring knob which allows, depending on the direction of rotation according to which it is turned, to engage or disengage the movable jaws with respect to the edge of a pot.

[0007] This last known technique, though it is aesthetically more acceptable since the control mechanism and in part the jaws are invisible, nonetheless does present some limitations especially pertaining to the constructive and assembly complexity, the weight and bulk of the control mechanism itself which determine quite large thicknesses of the cover as a whole.

[0008] In this situation the technical task set as the basis of the present invention is to devise a cover for pressure pots able substantially to overcome the limitations and drawbacks mentioned above.

[0009] The specified technical task is substantially accomplished by a cover for pressure pots that is characterised in that said control mechanism is able to impose to said movable jaws sliding motions in radial direction

with respect to said box body to determine the passage of said grip portions of the jaws from a disengaged position to an engaged position and vice versa with respect to the upper edge of the pot.

5 [0010] The description shall now be provided of a preferred but not exclusive embodiment of a cover for pressure pots according to the present invention, illustrated in the accompanying drawings, wherein:

- 10 - Figure 1 shows a perspective top view of the cover according to the invention;
- Figure 2 shows a perspective bottom view of the cover of Figure 1;
- Figure 3 shows a perspective and exploded view of the cover of Figure 1;
- 15 - Figure 4 presents a perspective top view of the control mechanism and of the movable jaws of the cover of Figure 1;
- Figure 5 is a top view of the cover of Figure 1;
- 20 - Figure 6 shows a section according to the VI-VI plane of Figure 5;
- Figure 7 shows a section according to the VII-VII plane of Figure 5; and
- Figure 8 shows a perspective exploded view of the components shown in Figure 4.
- 25

[0011] With reference to the mentioned figures, the cover for pressure pots according to the invention is indicated in its entirety with the number 1.

30 [0012] It comprises a box body 2 defining the base of the cover and peripherally provided with a flap 2a able to house a ring sealing gasket 3 presenting a substantially "C" shaped cross section.

[0013] On the outer part of the flap 2a bear four movable jaws 4 presenting grip portions 4a able to engage the outer profile and to be set in correspondence with a terminal projection 4b against the lower band of an upper edge of a pot provided for coupling to the cover, not shown in the accompanying drawings.

40 [0014] The movable jaws 4 and the related grip portions 4a can be moved from a disengaged position to an engaged position and vice versa with respect to the upper edge of the pot by means of an original control mechanism 5 able to impose to the jaws 4 themselves sliding motions in radial direction with respect to the box body 2 which determine the shift of the jaws between said disengaged and engaged positions.

45 [0015] The control mechanism 5 is completely housed inside a compartment 2b (Fig. 3) defined by the box body 2 and it is closed by a cover element 6 which extends externally to the flap 2a thereof in such a way as to cover from above and laterally also the movable jaws 4.

50 [0016] From a central hole 6a of the cover element 6 emerges a manoeuvring element 7 pivotally coupled to a base plate 8 placed in contact with the cover element 6 itself around said central hole 6a.

[0017] A safety device 9 prevents the manoeuvring el-

ement 7 from moving for the disengagement of the jaws 4 from the edge of the pot when pressure therein exceeds a pre-set value, for instance 0.1-0.2 bar.

[0018] An operating valve 10 known in itself, for instance calibrated to 0.6-0.8 bar, emerges from an opening 6b of the cover element 6.

[0019] Other safety valves, for instance a first safety valve 11 calibrated to 1-1.2 bar and a second safety valve 12 of the fusible type with activation pressure at 1.2-1.4 bar are fastened to the bottom of the box body 2.

[0020] A central pivot pin with head 13 traverses the manoeuvring element 7, the cover element 6, the control mechanism 5 and the box body 2 and is terminally coupled by means of a thread to a screw cover 14 in such a way as to fasten together all aforementioned components.

[0021] The manoeuvring element 7, fitted with two tabs to facilitate manual grip, is able to rotate around an axis of rotation 15, corresponding to the central axis of the cover, according to a first direction 16 for locking and in a second direction 17 for unlocking the jaws 4.

[0022] The control mechanism 5 comprises a crank mechanism 18 able to transform the rotations of the manoeuvring element 7 in said two directions, which can be of about 35 degrees - 40 degrees, into radial sliding motions of the jaws 4 respectively centripetal for locking and centrifugal for unlocking the jaws.

[0023] More specifically the control mechanism 5 further comprises a base support 19, preferably made of synthetic material, formed by two arms 19a and 19b arranged in a cross, each presenting peripherally two radial sliding tracks 20 which can be closed at the top by U-bolts 21 also made of synthetic material.

[0024] In each radial track 20 is slidingly engaged a guide appendix 4c of a respective jaw 4.

[0025] With particular reference to Figure 8, the crank mechanism 18 comprises a disk element 22 able to rotate around the axis of rotation 15 by rotatory coupling with a cylindrical guide 19c emerging centrally from the base support 19. The crank mechanism 18 further comprises four connecting rods 23, i.e. one for each movable jaw 4, terminally hinged, at their first end 23a, to the disk element 22 and at their second end 23b, to a hinging seat 4d of a guide appendix 4c of the respective jaw 4.

[0026] Hinging rivets 24, provided with projecting head, pivotally engage the first ends 23a of the connecting rods 23 to the disk element 22 and insert with the heads in housing seats 7a of the manoeuvring element 7 in such a way as to make it rotatorily integral to the disk element 22 itself.

[0027] Lastly the safety device 9 (Figures 3 and 7) comprises a stop expansion 22a integral to the disk element 22 and projecting therefrom on its development plane and a valve assembly 25, known in itself, engaged to the box body 2 and comprising a movable pivot pin 25a which, at a pre-set pressure inside the pot, lifts thereby interfering with said stop expansion 22a to pre-

vent the manoeuvring element 7 and the disk element 22 associated thereto from rotating in the unlocking direction 17.

[0028] The operation of a cover for pressure pots, described above mainly in the structural sense, is as follows.

[0029] After setting the box body 2 of the cover onto the edge of a pot, in such a way that the sealing gasket 3 is in contact therewith, the cover is locked by rotating the manoeuvring element 7 by about 35 degrees in the locking direction 16.

[0030] The manoeuvring element 7 initiates the rotation of the disk element 22 which effects the oscillation of the connecting rods 23. The latter in turn pull inwards the movable jaws 4 which slide radially on the sliding tracks 20 until coming to a stop against the edge of the pot where to the cover is coupled (see Figure 6).

[0031] The pressure inside the pot causes the lifting of the movable pivot pin 25a which, interfering with the stop expansion 22a, prevents the disk element 22 from rotating in the unlocking direction 17 (see Figure 7).

[0032] Once cooking operations are completed, after the steam has been vented off, since the movable pivot pin 25 can be lowered it is possible to rotate the manoeuvring element 7 in the unlocking direction so that the connecting rods 23 thrust the jaws 4 outwards.

[0033] The invention attains important advantages.

[0034] First of all, the control mechanism that realises the radial displacements of the movable jaws has a simple structure and essentially flat shape. It can therefore be housed in a box body of reduced thickness and hence of high aesthetic acceptability.

[0035] Moreover, the simplicity of the structure of the control mechanism causes the overall weight of the cover to be low and eases the assembly operations of the cover itself.

[0036] Lastly, it should be noted that the activation of the manoeuvring element is executed rapidly since a limited rotation is necessary both to lock and to unlock the jaws and requires an extremely limited effort

Claims

1. Cover for pressure pots comprising:

a box body (2) defining the base of the cover and fitted with a sealing gasket (3),
an element (6) for covering at least the box body,

at least two movable jaws (4) presenting grip portions (4a) able to engage an upper edge of a pot provided for coupling to the cover,
a mechanism (5) for controlling the movable jaws (4) housed inside the box body (2), and
an element (7) for manoeuvring the control mechanism (5) emerging from the cover element (6),

characterised in that said control mechanism (5) is able to impose to said movable jaws (4) sliding motions in radial direction with respect to said box body (2) to determine the passage of said grip portions (4a) from a disengaged position to an engaged position and vice versa with respect to the upper edge of the pot,

2. Cover according to claim 1, characterised in that said control mechanism (5) comprises at least a crank mechanism (18) able to transform rotatory displacements around an axis of rotation (15) of the manoeuvring element (7) in a first locking direction (16) and in a second unlocking direction (17) into respectively centripetal and centrifugal radial sliding motions of the movable jaws (4). 10 15
3. Cover according to claim 2, characterised in that said control mechanism (5) comprises radial sliding tracks (20) for said movable jaws (4). 20
4. Cover according to claim 2 characterised in that said cranking mechanism (18) comprises a disk element (22) able to rotate around said axis of rotation (15) and integral with said manoeuvring element (7), and a connecting rod (23) for each movable jaw (4) terminally hinged at a first end (23a) to said disk element (22) and at a second end (23b) to the respective jaw (4). 25 30
5. Cover according to claim 1 characterised in that it further comprises at least a safety device (9) able to prevent, once a pre-set pressure inside the pot has been exceeded, the manoeuvring element (7) from being displaced thereby unlocking the jaws of the pot itself. 35
6. Cover according to claims 3 and 5, characterised in that said safety device (9) comprises: 40
 - a stop expansion (22a) integral to said disk element (22) and projecting therefrom from its development plane,
 - and a valve assembly (25) provided with a movable pivot pin (25a) able to interfere with said stop expansion (22a) when said pre-set pressure inside the pot is exceeded in such a way as to prevent the rotation of said disk element (22) in the unlocking direction (17). 45 50
7. Cover according to claim 3, characterised in that said control mechanism (5) comprises a base support (19) formed by the arms arranged in a cross (19a, 19b) peripherally presenting said tracks (20) for the radial sliding of the jaws and centrally a cylindrical guide (19c) for the rotatory coupling with said rotating disk element (22). 55

8. Cover according to claim 7, characterised in that each of said movable jaws (4) comprises a guide appendix (4c) slidably engaged in the respective sliding track (20) of said base support (19) and presenting a seat (4d) for hinging to said second end (23b) of the respective connecting rod (23).
9. Cover according to claim 3, characterised in that in correspondence with said first hinging end (23a) of said connecting rod (23) to the disk element (22) a hinging rivet (24) is provided, fitted with a projecting head able to be inserted into a housing seat (7a) obtained in said manoeuvring element (7).

FIG. 1

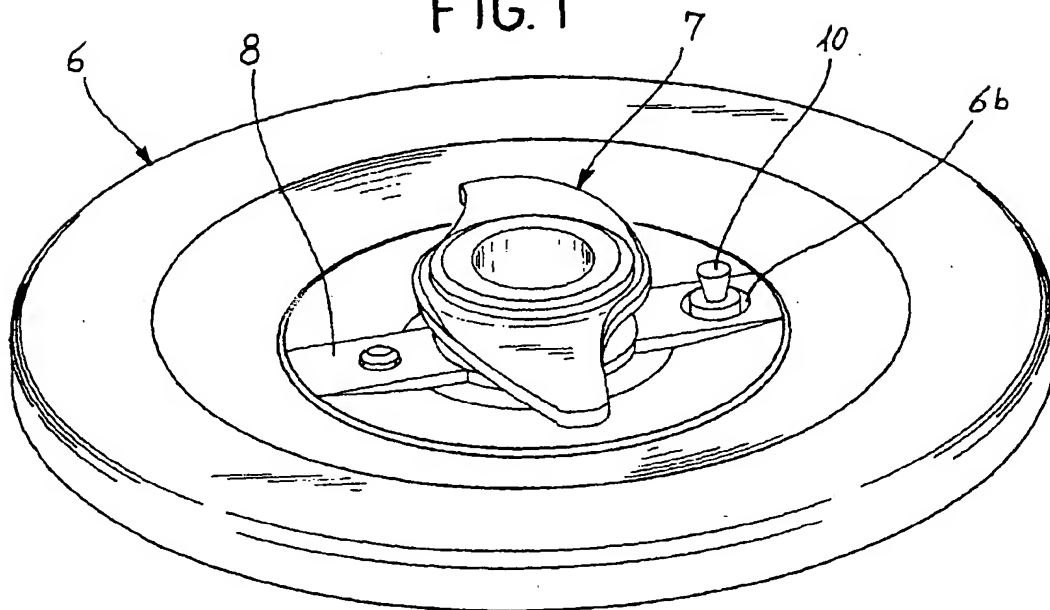
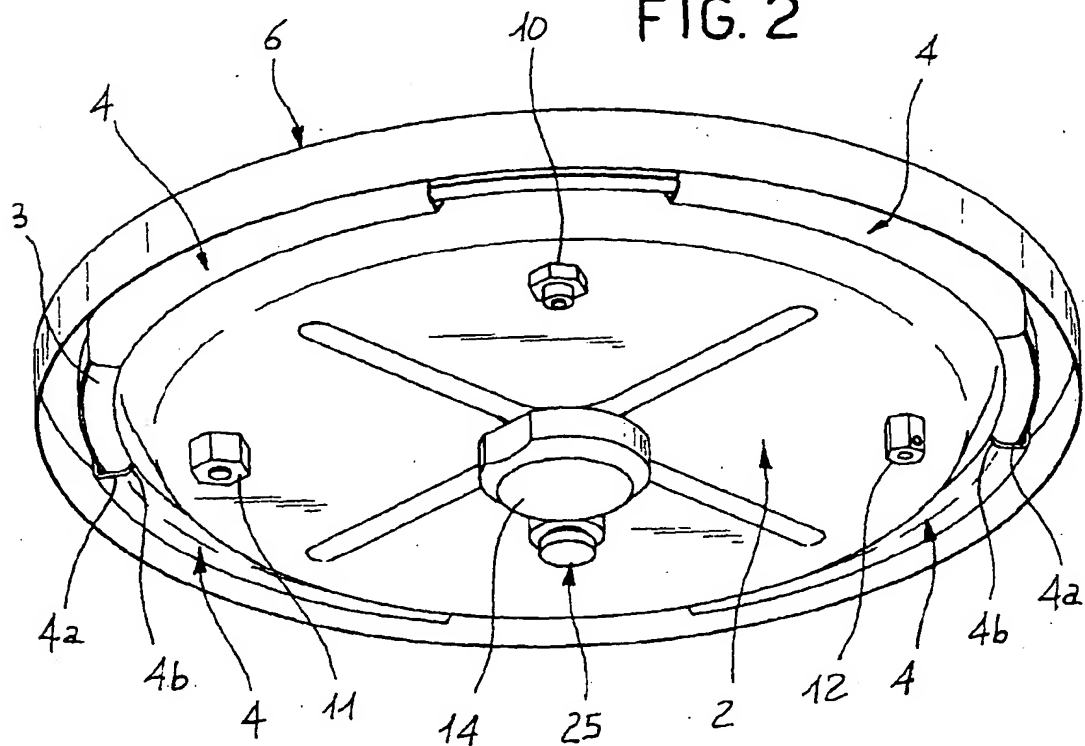
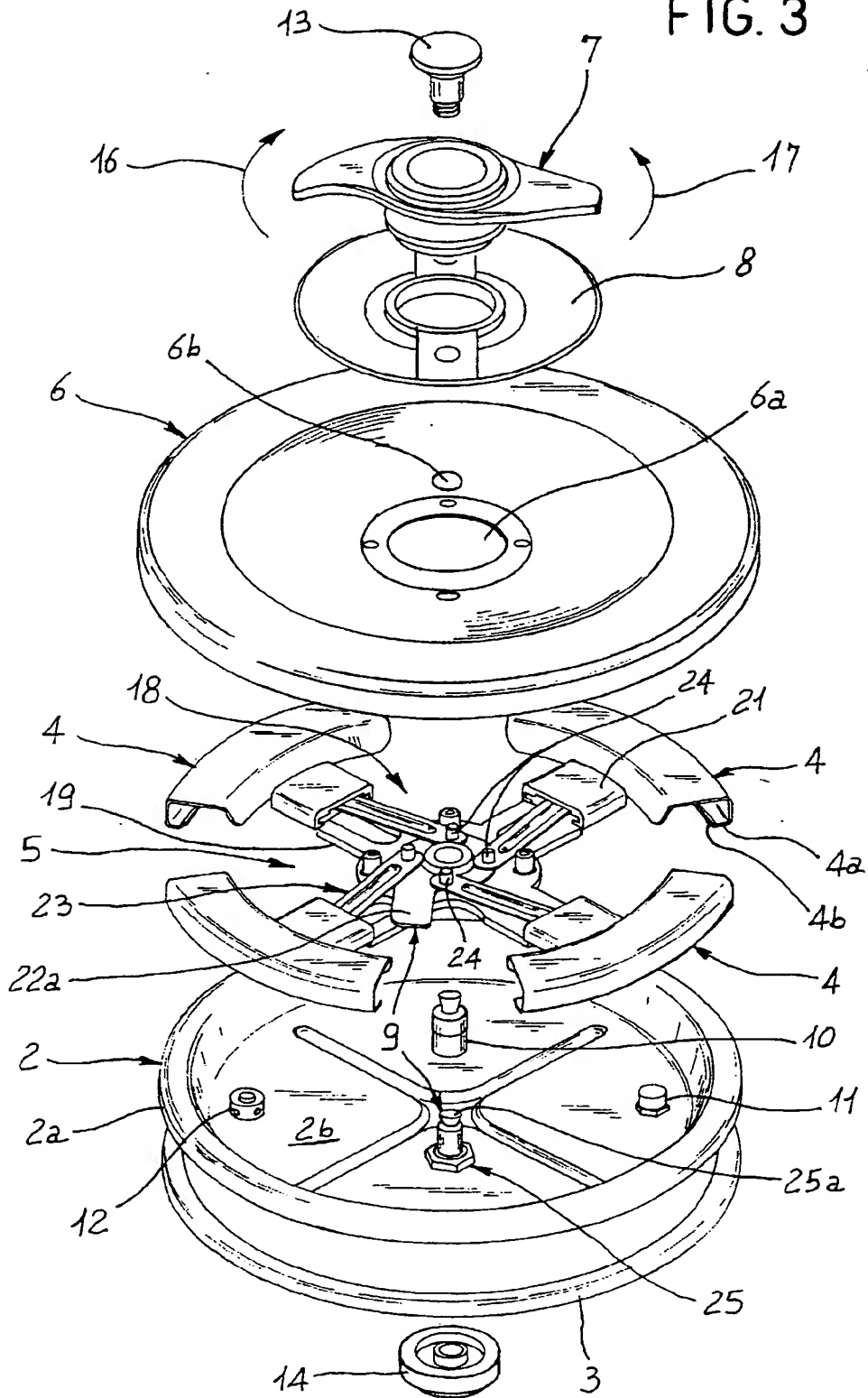


FIG. 2



BEST AVAILABLE COPY

FIG. 3



BEST AVAILABLE COPY

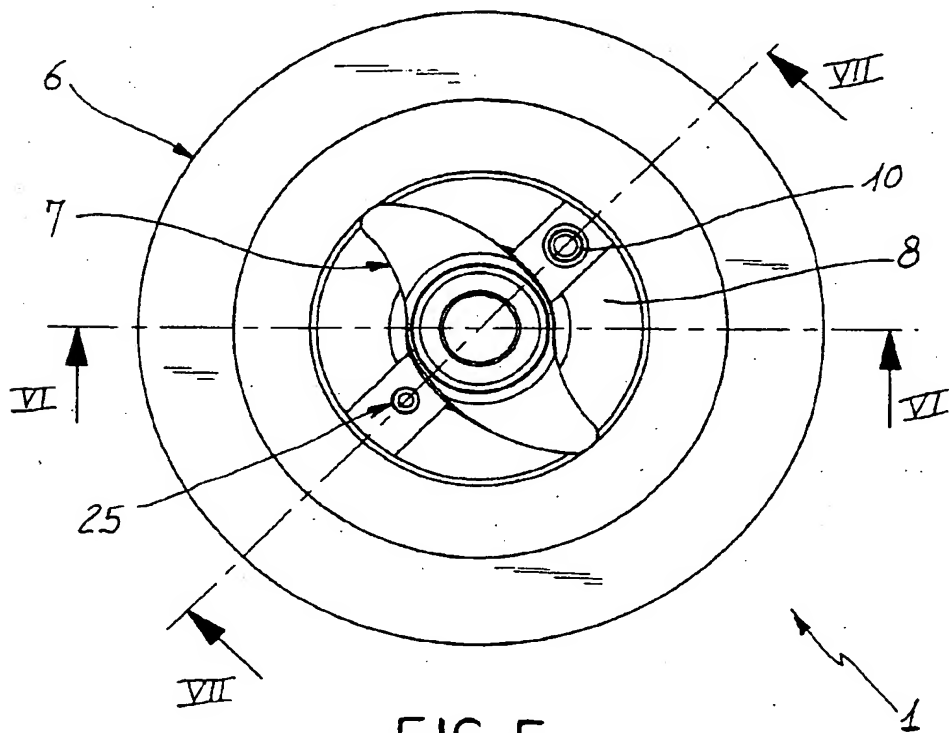
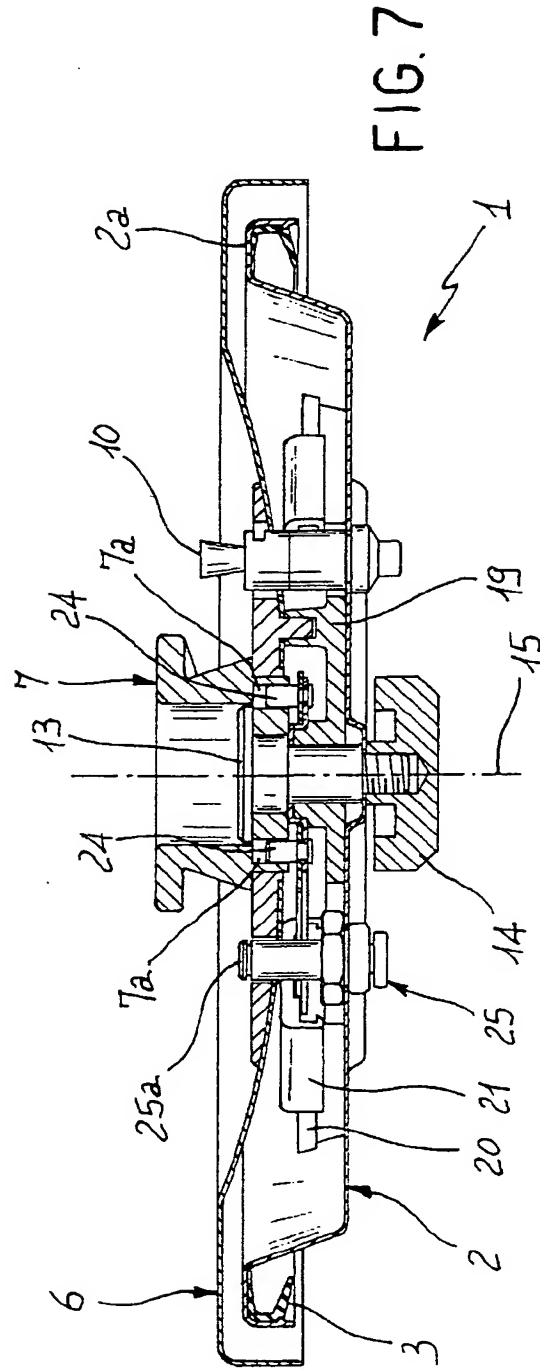
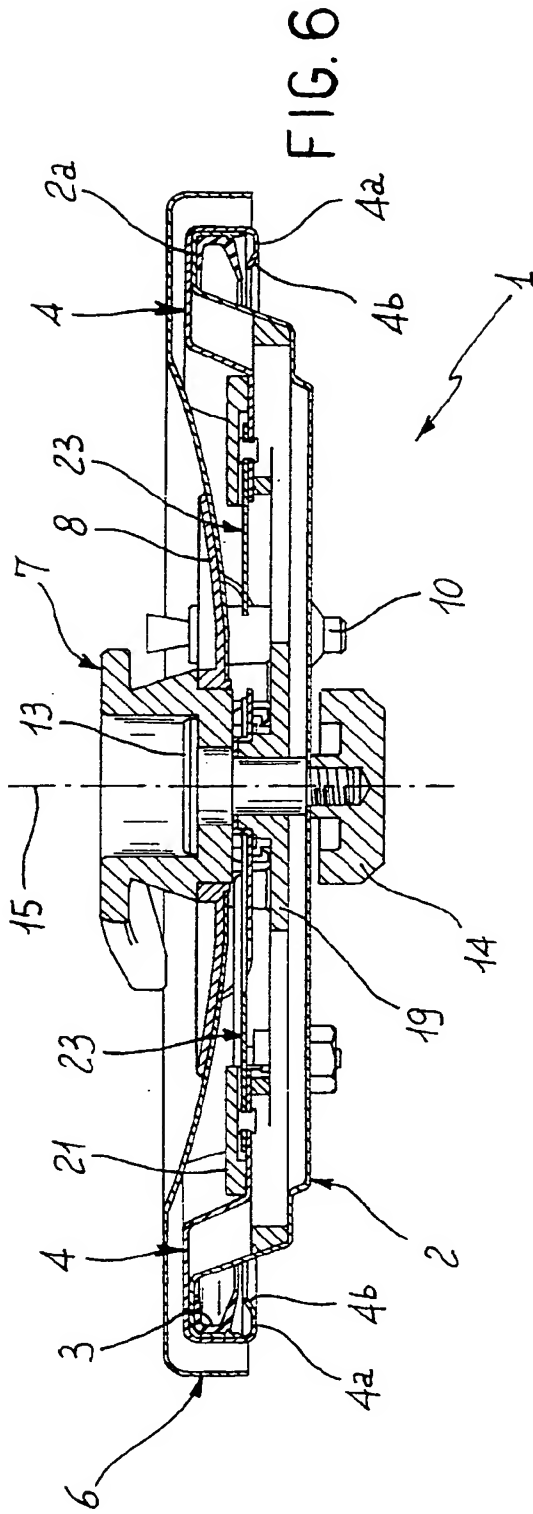


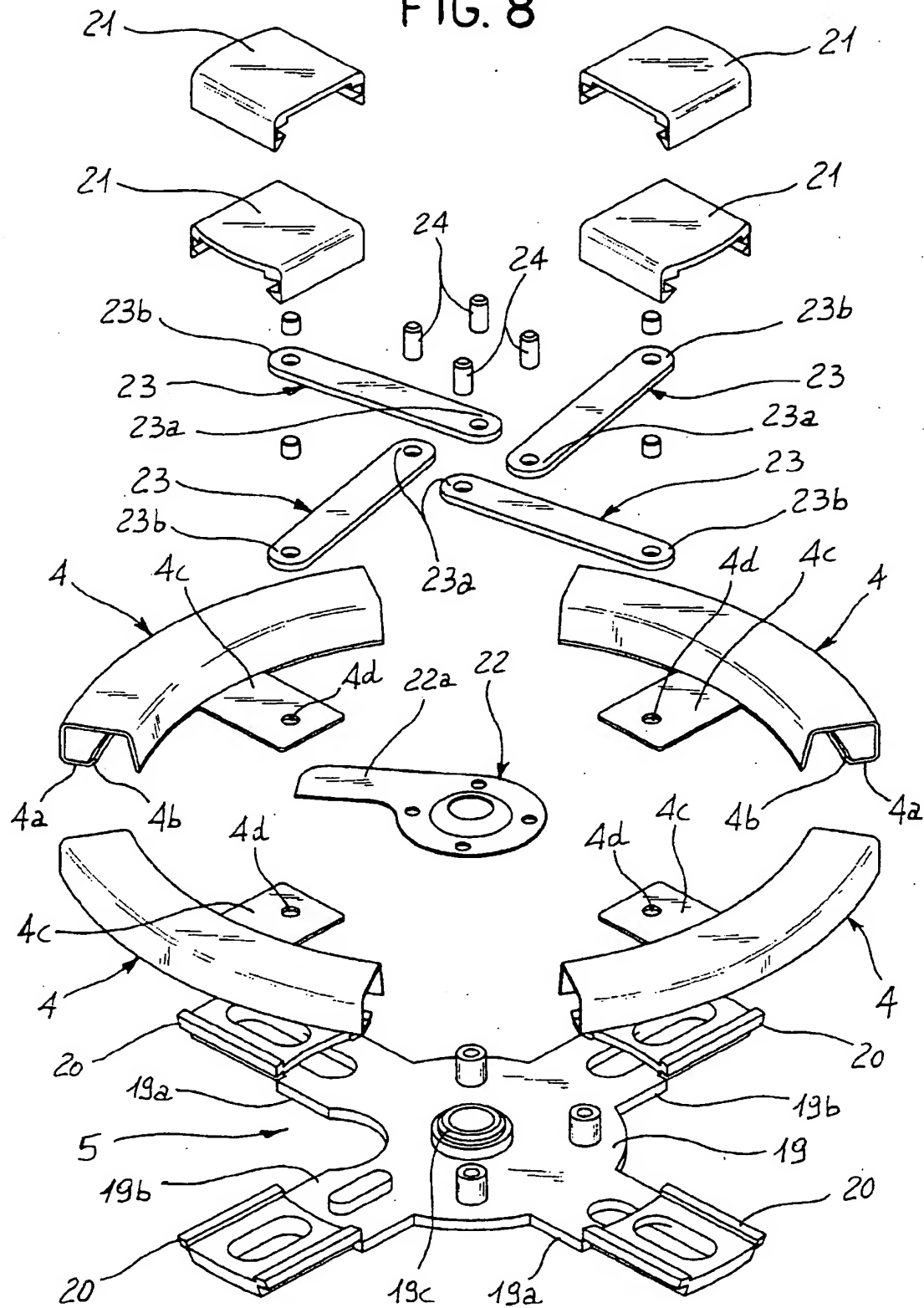
FIG. 5

SDOCID: <EP__1029483A1_I_>



BEST AVAILABLE COPY

FIG. 8



BEST AVAILABLE COPY



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 99 83 0082

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION
X	EP 0 139 772 A (AMC INTERNATIONAL ALFA METALCRAFT CORP.) 8 May 1985 (1985-05-08) * page 10, last paragraph - page 14, paragraph 1; figures 1-4 *	1-5	A47J27/08
X	US 5 678 721 A (CARTIGNY ET AL) 21 October 1997 (1997-10-21) * column 3, line 3 - column 8, line 7; figures *	1,5	
A		2-4,8,9	
X	EP 0 108 203 A (BOEHM) 16 May 1984 (1984-05-16) * page 8, paragraph 1 - page 13, paragraph 2; figures *	1,2,5	
X	US 1 907 528 A (EVANS) 9 May 1933 (1933-05-09) * page 2, line 64 - line 119; figures *	1,2	
			TECHNICAL FIELDS SEARCHED
			A47J
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 23 July 1999	Examiner Bodart, P
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on. or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03/92 (P04/C01)

BEST AVAILABLE COPY

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 99 83 0082

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

23-07-1999

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 139772	A	08-05-1985	AT 28121 T	15-07-1987
			AU 571153 B	31-03-1988
			AU 3194684 A	28-02-1985
			BR 8404247 A	23-07-1985
			CA 1220355 A	14-04-1987
			CY 1460 A	08-12-1989
			DK 400084 A,B,	26-02-1985
			GR 80167 A	20-12-1984
			JP 1712989 C	27-11-1992
			JP 3081369 B	27-12-1991
			JP 60077716 A	02-05-1985
			PT 79126 A,B	01-09-1984
			TR 23608 A	30-04-1990
			US 4627417 A	09-12-1986
			YU 143684 A	28-02-1987
US 5678721	A	21-10-1997	FR 2722077 A	12-01-1996
			AT 149079 T	15-03-1997
			AU 2929795 A	25-01-1996
			BR 9506024 A	14-10-1997
			CA 2170890 A	18-01-1996
			CN 1131905 A	25-09-1996
			DE 29510990 U	14-09-1995
			DE 69500162 D	03-04-1997
			DE 69500162 T	14-08-1997
			EP 0691096 A	10-01-1996
			ES 2100760 T	16-06-1997
			WO 9601069 A	18-01-1996
			GR 3023536 T	29-08-1997
			JP 10511561 T	10-11-1998
EP 108203	A	16-05-1984	DE 3232907 A	08-03-1984
			AT 32421 T	15-02-1988
			AU 554176 B	07-08-1986
			AU 1865783 A	08-03-1984
			BR 8304801 A	10-04-1984
			CA 1218246 A	24-02-1987
			DD 230765 A	11-12-1985
			DE 3375637 A	17-03-1988
			FI 833094 A,B,	05-03-1984
			GR 78979 A	02-10-1984
			IE 54634 B	20-12-1989
			IN 159094 A	21-03-1987
			JP 1660389 C	21-04-1992
			JP 3022163 B	26-03-1991
			JP 59071715 A	23-04-1984

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 99 83 0082

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

23-07-1999

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 108203 A		PT 77284 A,B	01-10-1983
		TR 21500 A	01-07-1984
		US 4470515 A	11-09-1984
		ZA 8306527 A	30-05-1984
US 1907528 A	09-05-1933	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82